

### **REMARKS**

Favorable reconsideration, reexamination, and allowance of the present patent application are respectfully requested in view of the foregoing amendments and the following remarks.

#### **Objection to Priority Claim**

At page 2 of the Office Action, the claim for priority under 35 U.S.C. § 119 to Applicant's prior German patent application was objected to, because the specification does not include a "specific reference" to the priority application. Applicant respectfully requests reconsideration of this objection.

37 C.F.R. §§ 1.55, 1.63 set forth the requirements for priority claims under 35 U.S.C. § 119 to foreign patent applications under the Paris Convention, while 37 C.F.R. § 1.78 sets forth the requirements for priority claims under 35 U.S.C. §§ 119 and/or 120 to prior-filed U.S. patent applications. It appears that the Office Action confuses the requirements of the two sets of Rules, because a 'specific reference' is required by Rule 78 to prior-filed U.S. applications, while Rule 63 requires that the priority claim be made in the Declaration (when not presented in an Application Data Sheet under Rule 76). Because this application makes no claim for priority to a prior-filed U.S. application, and makes a claim for Convention priority under section 119 to a foreign patent application, Rules 55 and 63 govern the priority claim, not Rule 78. Applicant notes that the Declaration under Rule 63 filed in this application properly lists and claims priority to the prior German patent application.

For at least the foregoing reasons, Applicant respectfully submits that the priority claim is proper, and therefore respectfully requests withdrawal of the objection thereto.

#### **Objection to the Abstract**

At page 3 of the Office Action, the Abstract was objected to because it allegedly did not conform to current U.S. practice. Applicant respectfully requests reconsideration of this objection.

By way of the foregoing amendment, the Abstract has been revised to better comply with

current U.S. practice.

For at least the foregoing reasons, Applicant respectfully submits that the Abstract is not objectionable, and therefore respectfully requests withdrawal of the objection thereto.

### **Rejection under 35 U.S.C. § 112, second paragraph**

In the Office Action, beginning at page 3, Claim 3 was rejected under 35 U.S.C. § 112, second paragraph, as reciting subject matter that allegedly is indefinite. Applicant respectfully requests reconsideration of this rejection.

Applicant has carefully reviewed Claims 2 and 3, and has made a grammatical change to Claim 3 in order to move a clause which, while not changing the meaning of the claim, makes it somewhat more readable.

For at least the foregoing reasons, Applicant respectfully submits that Claim 3 fully complies with 35 U.S.C. § 112, second paragraph, and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 112.

### **Rejection under 35 U.S.C. § 102**

In the Office Action, beginning at page 3, Claims 1, 12-14, and 16 were rejected under 35 U.S.C. § 102, as reciting subject matters that allegedly are anticipated by U.S. Patent No. 4,199,151, issued to *Bartos*. Applicant respectfully requests reconsideration of this rejection.

Applicant notes that, by way of the foregoing amendments, Claims 5, 11, and 15 have been placed in independent form; subject matter from Claims 11 and 9 have been added to Claim 1, *i.e.*, Claim 11 is now the independent claim from which Claims 12-14 and 16 depend. Applicant makes these amendments without acquiescing to the rejections in the Office Action, and reserves the right to file one or more Continuation applications to further pursue the subject matters described in this application.

None of Claims 5, 11, and 15 were rejected under section 102(b) over *Bartos*, and therefore the rejections thereunder are moot.

For at least the foregoing reasons, Applicant respectfully submits that the subject matters

of Claims 1, 12-14, and 16 are not anticipated by *Bartos*, are therefore not unpatentable under 35 U.S.C. § 102, and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 102.

### **Rejection under 35 U.S.C. § 103(a)**

In the Office Action, beginning at page 4, Claims 2, 4, 7-11, and 15 were rejected under 35 U.S.C. § 103(a), as reciting subject matters that allegedly are obvious, and therefore allegedly unpatentable, over *Bartos* in view of the disclosure of U.S. Patent No. 3,300,178, issued to *Rizk*, while Claims 5 and 6 were rejected under 35 U.S.C. § 103(a), as reciting subject matters that allegedly are obvious, and therefore allegedly unpatentable, over *Bartos* in view of the disclosure of U.S. Patent No. 5,165,847, issued to *Proctor*. Applicant respectfully requests reconsideration of these rejections.

This application describes exemplary devices and methods embodying principles of the present invention. One general idea of the present invention involves adapting an orifice region, facing a first cavity, of a cooling-gas passage with regard to its dimensioning and/or positioning. The orifice region is altered to a predetermined, expected range of displacement within which the relative displacements between two components take place. By means of this type of construction, a sufficiently large orifice cross section can be provided for every possible relative position between the two components, so that a sufficient cooling-gas supply to the first cavity, as well as a sufficiently large pressure in the first cavity, can always be available.

Claim 1 relates to a cooling arrangement having a combination of elements including, *inter alia*, a first component including a heat shield of a gas turbine, said heat shield, with respect to a rotation axis of a rotor of the gas turbine, being exposed radially on the inside to a third cavity and radially on the outside to a first cavity and to a second cavity, wherein a wall projects radially outward from the heat shield, wherein the wall extends in the circumferential direction, a plurality of circumferentially distributed cooling-gas passages arranged in the wall, a gap connecting the first cavity to the third cavity; and wherein the second component comprises a seal which bears against the wall of the heat shield and is configured and arranged to bear against

a second heat shield or against a root of a guide blade of the gas turbine, and seals said gap.

Claim 5 relates to a cooling arrangement having a combination of elements including, *inter alia*, a cooling-gas passage, in said orifice region, which widens toward a first cavity up to an orifice cross section.

Claim 15 relates to a cooling arrangement having a combination of elements including, *inter alia*, at least one cooling-gas passage comprises at least two cooling-gas passages, a groove formed in the wall on the bearing side, the groove connecting the at least two cooling-gas passages to one another so that the orifice regions of said cooling-gas passages are formed by the groove or merge into the groove, wherein a plurality of circumferentially distributed cooling-gas passages are formed in the wall; and the groove extends in the circumferential direction.

The prior art, including *Bartos*, *Rizk*, and *Proctor*, fails to disclose, describe, or fairly suggest the subject matters of the pending claims.

In *Bartos*, Fig. 1, a first component having a wall is a shroud support hanger (13) – not a (first) heat shield. This shroud support hanger is not exposed to the hot gas region, *i.e.*, does not limit the third cavity. In *Bartos*, a third component is an outer nozzle support (12) – not a (second) heat shield or a blade root, respectively. While a second component indeed is a seal (11), this seal is mounted to the outer nozzle support and therefore is arranged within a groove (31). Accordingly, *Bartos*' seal cannot move significantly in a radial direction. Furthermore, relative radial movements between the shroud support hanger and the outer nozzle support do not occur. Accordingly, there is no danger of closing the cooling-gas passage to radial movements of the seal relative to the shroud support hanger.

*Rizk* fails to make up for these deficiencies of *Bartos* with respect to the subject matter of Claim 1, at least because *Rizk* is not concerned with the relative movement of a second component to first and third components, as recited in the pending claims.

Concerning Claim 5, *Proctor* does not make up for the deficiencies of *Bartos* with respect to the claimed combinations. *Proctor* depicts, in Fig. 3, a channel (86) including a tapered enlargement frustoconical recuperator (92) (see column 4, lines 67, 68). This structure is not an "orifice region" as recited in the pending claims, at least because the recuperator extends over at

least 70% of the whole channel. Concerning Claim 6, Proctor fails to disclose, describe, or suggest transforming such a recuperator into a bevelled or widening orifice region.

Concerning Claim 15, Applicant respectfully submits that there is no motivation in the prior art documents, expressly or intrinsically, to make the modifications to the *Bartos* device to arrive at the claimed combination. The only motivation that can be found to make the change to *Bartos*' device, alleged to be obvious in the Office Action, is found in the Applicant's own specification, which is an impermissible hindsight reconstruction of the claimed invention. *Rizk* depicts, in Figs. 2 and 3, only an annular groove (70), which is open radially and inwardly, while the claimed combination includes an annular groove which is open axially. This is a significant technical difference, since the groove is within the bearing side of the wall and may extend into the range of displacement of the second component, *i.e.*, the seal. With an aim of ensuring at least a predetermined minimum cross-section for the cooling-gas flow, there is no reason to transform the radially open groove of *Rizk* into an axially open groove as claimed. Accordingly, lacking the requisite motivation or suggestion to modify *Bartos*' device, a *prima facie* case has not been made.

For at least the foregoing reasons, Applicant respectfully submits that the subject matters of Claims 2, 4, 7-11, and 15, each taken as a whole, would not have been obvious to one of ordinary skill in the art at the time of Applicant's invention, are therefore not unpatentable under 35 U.S.C. § 103(a), and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 103(a).

## **Conclusion**

Applicant respectfully submits that the present patent application is in condition for allowance. An early indication of the allowability of this patent application is therefore respectfully solicited.

If Mr. Wiehe believes that a telephone conference with the undersigned would expedite passage of this patent application to issue, he is invited to call on the number below.

It is not believed that extensions of time are required, beyond those that may otherwise be provided for in accompanying documents. If, however, additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and the Commissioner is hereby authorized to charge fees necessitated by this paper, and to credit all refunds and overpayments, to our Deposit Account 50-2821.

Respectfully submitted,

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<sup>1</sup> 37 C.F.R. § 1.4(d)(3)